

REMARKS

Claims 1-16 are pending in this application. By this Amendment, claims 1, 3, 6, 7 and 13 have been amended and claims 15 and 16 have been added. Claims 1 and 13 are independent. Reconsideration of the application is respectfully requested.

I. Amendment

Support for the amendments to claims 1 and 13 can be found in the specification at, for example, page 5, line 33 - page 6, line 20. Support for new claim 15 can be found in the specification at, for example, page 8, line 1 - page 9, line 9. Support for new claim 16 can be found in the specification at, for example, page 4, lines 19-34. Claims 3, 6 and 7 have been amended for consistency. Thus, no new matter is added.

II. Interview

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Chang in the November 24, 2009 and January 6, 2010 telephone interviews. Applicants' separate record of the substance of the interviews is incorporated into the following remarks.

III. The Claims Define Patentable Subject Matter

The Office Action rejects claims 1-13 under 35 U.S.C. §103(a) over U.S. Patent No. 4,974,165 to Locke et al. (Locke) in view of U.S. Patent No. 6,519,860 to Bieg et al. (Bieg) and further in view of U.S. Patent Application Publication No. 2003/0061857 to Keller.¹ This rejection is respectfully traversed.

Independent claim 1 recites, *inter alia*, "recording a first data set from at least one first sensor comprising varying data representing the position of the workpiece measurement device," "recording a second data set from at least one second sensor separate from the at

¹ It appears that the Office Action intends to reject claims 1-14 instead of claims 1-13.

least one first sensor comprising varying measurement data concerning the workpiece as detected and output by the workpiece measurement device" and "the synchronisation signals are used in the recording of the first and second data sets such that simultaneous measurement device position and workpiece measurement device measurement data can be determined and subsequently combined; combining data from the first and second data sets based on the synchronisation signals so as to obtain at least one instance of simultaneous measurement device position and workpiece measurement device measurement data so as to obtain a measurement at a location on the workpiece." Independent claim 13 recites similar subject matter. The applied references fail to teach or render obvious recited features of independent claims 1 and 13.

A. The Applied References Fail To Teach Or Render Obvious The Recited "Representing" Features

Claim 1 recites "recording a first data set from at least one first sensor comprising varying data representing the position of the workpiece measurement device," and "recording a second data set from at least one second sensor separate from the at least one first sensor comprising varying measurement data concerning the workpiece as detected and output by the workpiece measurement device." Claim 13 recites similar features. The applied references do not disclose or render obvious this feature.

As discussed during the interviews, the Office Action relies on col. 2, line 55 - col. 3, line 4 of Locke for corresponding with the recording of the first and second data set. However, as discussed below, this reliance is improper as applied to amended claims 1 and 13.

In particular, Locke discloses a real-time machining system which provides for dimensional feedback control of tolerances to assure that the actual machined geometry of the workpiece is the same as that specified by the part program. See col. 2, lines 12-20 of Locke. The system of Locke comprises feeding data defining a desired profile and dimensions of the

workpiece to a computer, producing from the computer a succession of digital signals defining a succession of required cutting tool positions to machine the workpiece to that profile and dimension. The system also derives an error signal representing the difference between the actual dimension or parameter of the workpiece and that of the part program. See col. 2, line 55 - col. 3, line 4. However, the error signal does not represent the position of the workpiece or varying data of the workpiece, but instead relates to an error signal representing the difference between the actual dimension of the workpiece and that of the part program. Thus, Locke fails to teach or render obvious recording a first data from at least one first sensor comprising varying data representing the position of the workpiece measurement device and recording a second data set from at least one second sensor separate from the at least one first sensor comprising varying measurement concerning the workpiece as detected and output by the workpiece measurement device. Bieg and Keller fail to cure the deficiencies of Locke.

B. The Applied References Fail To Teach Or Render Obvious Combining Data From The First And Second Data Sets Based On The Synchronisation Signals

Claim 1 recites "the synchronisation signals are used in the recording of the first and second data sets such that simultaneous measurement device position and workpiece measurement device measurement data can be determined and subsequently combined; combining data from the first and second data sets based on the synchronisation signals so as to obtain at least one instance of simultaneous measurement device position and workpiece measurement device measurement data so as to obtain a measurement at a location on the workpiece." Claim 13 recites similar features. The applied references do not disclose or render obvious these features.

As discussed during the interviews, the Office Action acknowledges that Locke does not teach synchronisation signals that are used in combining the first and second data sets. However, the Office Action alleges that Bieg and Keller cure the deficiencies of Locke. In

particular, the Office Action relies on Fig. 23 and col. 20, line 62, col. 21, line 17, col. 5, lines 11-48 of Bieg and the Abstract and paragraphs [0012], [0015] and [0021] of Keller for corresponding with the recited synchronisation signals. However, as discussed below, this reliance is improper as applied to amended independent claims 1 and 13.

In particular, Bieg discloses a system and method for providing independent real-time position feedback control during precision machining. See col. 7, lines 10-27 of Bieg. A 3-D milling machine having a milling head with a pivotally attached probe tip has the milling head positioned at its home position. Then a NC program provides a command to the milling machine's position controller to move the milling head to a desired position. The position controller provides commands to the x, y, z motor drives. ACMM10 measures the true position of the milling head. Then, a computer microprocessor compares the true measured position with the desired position, and creates a position error signal representative of the error between the desired and actual position of the milling head. Next, the position error signal is fed back to the milling machine's position control in a closed-loop manner, thereby correcting the position. See col. 20, line 62 - col. 21, line 17 of Bieg. However, Bieg does not disclose any synchronisation signals used in combining of the actual position with the desired position of the milling head. As a result, the position needs to be corrected as many times as necessary to reduce the position error signal. Furthermore, Bieg does not combine the true position with the desired position measured by two different sensors. Accordingly, Bieg fails cure the deficiencies of Locke.

Keller also fails to cure the deficiencies of Locke. Keller discloses a method for providing message diagnosis and for error recovery in a system with at least one industrial machine and/or components of the machine. Keller also discloses at least one error recovery measure is stored in the message diagnosis unit in addition to the received error messages. If the message diagnosis unit is not yet aware of error recovery messages for a specific error,

then there is no need for error recovery measures or the proposed error recovery measures should be added to the message diagnosis. If the error messages have additional information, such as a date and/or a time stamp, then information can be included in the diagnosis to improve the diagnosis of the errors. Error messages can be evaluated in the context of the accompanying circumstances. The accompanying circumstances can be characterized by the order of the received messages and also by the time stamp of the messages provided by industrial machine or its components. See Abstract and paragraphs [0012], [0015] and [0021] of Keller. As shown in these passages, Keller merely discloses handling error messages from one or more systems. The time stamps are not used for combining first and second data sets from separate sensors. Keller does not teach synchronisation signals that are used in combining the first and second data sets. Thus, Keller fails to cure the deficiency of Locke and Bieg. Accordingly, the applied references, alone or in any combination, fail to teach or render obvious that the synchronisation signals are used in the recording of the first and second data sets such that simultaneous measurement device position and workpiece measurement device measurement data can be determined and subsequently combined; combining data from the first and second data sets based on the synchronisation signals so as to obtain at least one instance of simultaneous measurement device position and workpiece measurement device measurement data so as to obtain a measurement at a location on the workpiece. Thus, they fail to teach or render obvious the recited features of independent claims 1 and 13.

The dependent claims are patentable at least to their dependencies on allowable independent claims 1 and 13 and for the additional features they recite.

Accordingly, withdrawal of the rejection of the claims is respectfully requested.

IV. New Claims 15 And 16 Are Patentable

New claims 15 and 16 are added. As discussed during the interviews, new claim 16 is patentable at least due to its dependence on allowable independent claim 1 and for the additional features it recites. Also, new Claim 15 is patentable at least due to its dependence on allowable independent claim 1 and from the addition features it recites.

V. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-16 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:

Petition for Extension of Time

Date: January 28, 2010

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